CHAPTER 22

CBRN Weapons and the Protection of the Environment during Armed Conflicts

Stefano Saluzzo

1 Introduction

During the Vietnam War, more than 20 million gallons of herbicides were sprayed over the Vietnamese rain forests, wetlands and croplands. The campaign, aimed at destroying food resources and depriving the enemy of concealment, was initially started at the request of the South Vietnamese Government and then turned into a US White House programme under the name of Operation Ranch Hand. Within the latter, the US developed the well-known Agent Orange, a dioxin-contaminated herbicide capable of defoliating thick jungle vegetation.[1] A recent study has investigated the long-lasting effects of the dioxin used during the Vietnam War and how it is still affecting soils, water, sediment, fish, aquatic species, the food supply, and Vietnamese health.[2] The environmental legacy of Agent Orange could potentially last for decades or even centuries.

The connection between the use of CBRN weapons and the role of international humanitarian law (IHL) in protecting the environment is not expressed in clear terms in the rules applicable to armed conflicts. Nonetheless, the use of Agent Orange in Vietnam represents one of the key moments in history that led to the drafting of these rules,[3] together with the threat posed by nuclear

1 See P Sills, *Toxic War – The Story of Agent Orange* (Vanderbilt University Press 2014); AL Young, *The History, Use, Disposition and Environmental Fate of Agent Orange* (Springer 2009) 57.

2 KR Olson and LW Morton, 'Long-Term Fate of Agent Orange and Dioxin TCDD Contaminated Soils and Sediments in Vietnam Hotspots' (2019) 9(1) *Open Journal of Soil Science* 1. Other studies recently demonstrated the long-term environmental effects of mustard gas and other chemical agents employed during WWII. See P Vanninen *et al* 'Exposure status of sea-dumped chemical warfare agents in the Baltic Sea' (2020) 161 *Marine Environmental Research* 105112.

3 In 1969, the UN General Assembly adopted a resolution widening the scope of the 1925 Geneva Gas Protocol and recognising it as part of international customary law. UNGA Res 2603 A (1969) GAOR 24th session Supp 30, 16. Nevertheless, all actions brought before US courts to claim damages deriving from the use of Agent Orange have been dismissed, on the

© STEFANO SALUZZO, 2022 | DOI:10.1163/9789004507999_023
This is an open access chapter distributed under the terms of the CC BY-NC-ND 4.0 license.
Stefano Saluzzo - 9789004507999
Downloaded from Brill.com03/23/2022 08:30:07AM
via free access

weapons during the Cold War. In 1976, the Conference on Disarmament adopted the Convention on the Prohibition of Military or Any Hostile Use of Environmental Modification Techniques (ENMOD), while the Diplomatic Conference on the Reaffirmation and Development of International Humanitarian Law (1974–1977) was able to reach an agreement on the introduction of certain rules on environmental protection within the newly adopted text of Additional Protocol I (AP I) to the Geneva Conventions.

It is worth recalling that, throughout history, environmental damage has been an inherent element of any armed conflict, not necessarily linked to the use of specific weapons.[4] The present chapter will deal exclusively with environmental damage arising out of the use of CBRN weapons and it does not aim at addressing all the problems related to environmental protection in armed conflicts.

The aim of the present chapter is to understand the extent to which the rules on environmental protection in armed conflicts could provide a further layer of restrictions on the use of CBRN weapons. Moreover, the chapter addresses the relevance of international environmental law (IEL) principles that could provide a more detailed regulation of the different phases of a CBRN event occurring during an armed conflict.

2 The Provisions on Environmental Protection during Armed Conflicts

For quite a long time, the law of armed conflict (LOAC) paid little if no attention to environmental issues arising from war. Whether damage to the environment was directly intentional (with the aim of gaining a specific military advantage) or caused indirectly by the hostilities (as a type of collateral damage), it was never addressed by any rules on armed conflict until the seventies. Even instruments dealing with chemical weapons, such as the Geneva Gas Protocol of 1925, were not based on environmental concerns.[5]

---

ground that at the time no prohibition on the use of herbicides existed in the law of armed conflict. See eg United States Court of Appeals for the Second District, *Vietnam Association for Victims of Agent Orange*, 05-1953-cv, judgment of 22 February 2008.

4 See J Wyatt, 'Law-Making at the Intersection of International Environmental, Humanitarian and Criminal Law: the Issue of Damage to the Environment in International Armed Conflicts' (2010) 92 *IRRC* 596–598.

5 Even more recent international instruments, such as the 1972 Biological Weapons Convention or the 1993 Chemical Weapons Convention do not mention the protection of the environment as one of their main objectives.

Stefano Saluzzo - 9789004507999
Downloaded from Brill.com03/23/2022 08:30:07AM
via free access

The first set of rules expressly dealing with the protection of the environment was introduced in the 1977 AP I to the Geneva Conventions, regulating international armed conflicts, together with the adoption of the ENMOD Convention in 1976. These two frameworks follow a common pattern, although with major differences as to the scope of protection provided therein.

2.1 *Additional Protocol I and the ENMOD Convention*

Under Article 35 AP I, devoted to the basic rules on choice of means and methods of warfare,[6] paragraph 3 forbids the parties 'to employ methods or means of warfare which are intended, or may be expected, to cause widespread, long-term and severe damage to the natural environment'. The provision is to be read in conjunction with Article 55(1) AP I, expressly dealing with the protection of the environment:

> Care shall be taken in warfare to protect the natural environment against widespread, long-term and severe damage. This protection includes a prohibition of the use of methods or means of warfare which are intended or may be expected to cause such damage to the natural environment and thereby to prejudice the health or survival of the population.

Moreover, under Article 55(2) AP I, attacks against the environment by means of reprisals are equally prohibited. During the Diplomatic Conference that led to the adoption of AP I, concerns were raised against having two provisions of almost identical content; however, an attempt to incorporate Article 35(3) into Article 55 failed: while Article 55 was dealing with the protection of the natural environment, Article 35 was dealing with the prohibition of unnecessary suffering.[7]

Whereas the provisions enshrined in AP I only apply to international armed conflict, the prohibitions deriving from the ENMOD Convention apply in both times of peace and times of war. The Convention requires States Parties 'not to engage in military or any other hostile use of environmental modification techniques having widespread, long-lasting or severe effects as the means of destruction, damage or injury to any other State Party' (Article I) and forbids 'any technique for changing – through the deliberate manipulation of natural

6 On choice of means and methods of warfare in relation to CBRN weapons, see ch 21 by Mauri.

7 See Official Records of the Diplomatic Conference on the Reaffirmation and Development of International Humanitarian Law Applicable in Armed Conflicts, CDDH/III/GT/35, 3 para. 11. See also J de Preux, 'Protocol I – Article 35' in Y Sandoz, C Swinarski and B Zimmermann (eds.), *Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949* (ICRC/Martinus Nijhoff Publishers 1987) 414 (para 1449).

Stefano Saluzzo - 9789004507999
Downloaded from Brill.com03/23/2022 08:30:07AM
via free access

processes – the dynamics, composition or structure of the Earth, including its biota, lithosphere, hydrosphere and atmosphere, or of outer space' (Article II).

Notwithstanding the similar phrasing on environmental protection and the threshold of damage, the protection offered by the two instruments is quite different. In fact, ENMOD requires 'widespread, long-lasting *or* severe' damage and it is thus sufficient for a State's behaviour to meet alternatively one of the three criteria to be considered illegal. On the contrary, the three criteria in AP I are jointly considered as cumulative.[8] This difference determines different scopes of application of the two sets of rules. While, on the one hand, the rules in AP I have a wider scope in terms of the types of conduct covered, as they do not refer specifically to certain techniques, the threshold of damage triggering their application is certainly higher than the one set forth by the ENMOD Convention.[9] As we will see, the need to assess the entirety of the damage caused by CBRN events and weapons is essential to the application of the AP I rules to them.[10]

Finally, an additional protection from CBRN events during armed conflict might be found in Article 56 AP I, prohibiting attacks against works and installations that may release dangerous forces, such as nuclear power stations or chemical factories. Although the provision refers expressly to the consequences such a release may have for the civilian population, the prohibition can also be construed in terms of an indirect environmental protection.[11] Furthermore, such protection would not be subject to the strict requirements set forth by the above-mentioned rules of AP I.

2.2 *Customary Law*

In the *Nuclear Weapons* Advisory Opinion, the International Court of Justice (ICJ) referred to IHL rules on environmental protection as 'powerful constraints for all the States having subscribed to these provisions'.[12] The statement casts some doubt as to whether the prohibition of environmental damage during armed conflict could have reached the status of customary law.[13] However,

8 M Bothe, C Bruch, J Diamond and D Jensen, 'International law protecting the environment during armed conflict: gaps and opportunities' (2010) 92 *IRRC* 572.

9 See E David, *Principes de droit des conflits armés* (Bruylant 2012) 351.

10 See Section 4 below.

11 S Oeter, 'Methods and Means of Combat' in D Fleck (ed), *The Handbook of International Humanitarian Law* (Oxford University Press 2013) 216.

12 ICJ, *Legality of the Threat or Use of Nuclear Weapons* (Advisory Opinion) [1996], para 31. The ICJ instead recognised the customary nature of certain principles of international environmental law, in particular referring to the *Trail Smelter* principle (para 29).

13 See J Gaudreau, 'The reservations to the Protocols additional to the Geneva Conventions for the protection of war victims' (2003) 849 *IRRC* 143.

Stefano Saluzzo - 9789004507999
Downloaded from Brill.com03/23/2022 08:30:07AM
via free access

several efforts have been made with the aim of recognising the customary nature of IHL rules on the environment.

First of all, the International Committee of the Red Cross (ICRC) has confirmed that the relevant principles on the conduct of hostilities apply also to the environment, even extending the scope of the original rules enshrined in AP I. Aware of the fact that during an armed conflict the environment could easily be affected by the hostilities, Rule 43 of the *Study on Customary Law* establishes that no part of the natural environment can be attacked, unless it is a military objective, thus confirming the civilian nature of the environment.[14] The protection is further strengthened by reference to the principles of military necessity and proportionality, that must be applied in assessing the legitimacy of armed force used against the environment.[15] Rule 45 confirms the customary nature of the provision enshrined in Article 35 of AP I, also specifying that the destruction of the environment may not be used as a weapon. The ICRC's study has layered a double level of protection for the natural environment in Rule 45, joining the specific provisions of Article 35 and of the ENMOD Convention with the general principles on the conduct of hostilities.[16] Finally, an innovative perspective has been taken in drafting Rule 44, which draws upon the precautionary principle of Article 57 AP I and entails certain features inspired by IEL.

Quite a different approach is to be found in the work of the International Law Commission (ILC) on the protection of the environment in relation to armed conflict, which resulted in the drafting of 28 principles adopted at first reading in 2019.[17] The work is based on a careful assessment of the interplay of IHL with other fields of international law, especially human rights and IEL,[18] thus offering a complementary legal framework to the work of the ICRC.[19]

The identification of customary rules plays an essential role also in relation to non-international armed conflict, especially because Additional Protocol II does not contain any reference to environmental protection.[20]

14 See Rule 43(A). See also Bothe/Brunch/Diamond/Jensen (n 8) 576–577.

15 Rule 43(B) and 43(C).

16 See, however, Wyatt (n 4) 613 (fn 95).

17 See ILC 'Report of the International Law Commission, Seventy-first Session' UN Doc A/74/10 (2019) (ILC 71st Session Report) 208–296.

18 See M Lehto, 'Armed conflicts and the environment: The International Law Commission's new draft principles' (2020) 29 *Review of European, Comparative and International Environmental Law* 69.

19 ILC, 'Text of the draft principles on Protection of the environment in relation to armed conflicts and commentaries thereto', in ILC 71st Session Report 215, Introduction, para 3.

20 An indirect protection for the environment could be derived by rules on the conduct of hostilities mirroring those provided for in AP I. See J Pretorius, 'Enhancing Environmental Protection in Non-International Armed Conflict: The Way Forward' (2018) 78 ZaöRV 903.

Stefano Saluzzo - 9789004507999
Downloaded from Brill.com03/23/2022 08:30:07AM
via free access

The ICRC Commentary to the *Study on Customary Law* affirms that the principle of due regard for the environment 'applies in non-international armed conflicts if there are effects in another State'.[21] As to the rules on choice of means and methods that may affect the environment, their application in non-international armed conflicts is still subject to debate.[22]

3 Interactions between International Environmental Law and the LOAC

The development of IEL in the seventies was certainly a major factor in introducing environmental considerations into the LOAC. As early as 1969, the UN General Assembly made an effort to extend the scope of the 1925 Gas Protocol to 'chemical or biological agents of warfare intended to cause disease in or have effect on man, animals or plants'.[23] The awareness of the natural environment's fragility in armed conflict was also recognised at the Stockholm conference of 1972, with Principle 22 calling for international cooperation to further develop the law on liability for environmental damage and, more importantly, Principle 26 recognising that '[m]an and his environment must be spared the effects of nuclear weapons and all other means of mass destruction'.[24]

In addition, a major issue is to what extent IEL rules and principles can be applied during an armed conflict.[25] The general trend of extending the applicability of peacetime international law instruments to armed conflict has involved IEL as well.[26] However, defining the scope of application of such rules and principles may prove particularly complex. Firstly, it will depend on the provisions of the treaty itself and on their interpretation; secondly, it might be subject to the general rules on the law of treaties, especially on suspension (or termination) of international agreements; finally, once established that a

21 The argument would be supported by the applicability in armed conflicts of general principles of IEL. See J-M Henckaerts and L Doswald-Beck, *Customary International Humanitarian Law – Volume I: Rules* (Cambridge University Press 2009) 148–149.

22 Ibid 156–157.

23 General Assembly Resolution 2603 (XXIV) of 16 December 1969, 24th Session, 1836th plenary meeting.

24 Declaration of the United Nations Conference on the Human Environment, 16 June 1972, 1972 UNYB 319, ('Stockholm Declaration').

25 The content of rules and principles of IEL is beyond the scope of this chapter. For a detailed overview, see ch 34 by Capone in this volume.

26 See in this regard also the Rio Declaration on Environment and Development, 13 June 1992, UN Doc. A/CONF.151/26, Vol. I, Principle 24.

Stefano Saluzzo - 9789004507999
Downloaded from Brill.com03/23/2022 08:30:07AM
via free access

certain rule of IEL applies to the armed conflict, the relationship of that rule with other IHL rules must be established.[27]

A general principle in this regard was adopted by the ILC in 2008 in its work on the effects of armed conflicts on treaties.[28] Under Draft Article 3, the existence of an armed conflict 'does not *ipso iure* terminate or suspend the operation of treaties as between States parties to the conflict and as between a State party to the conflict and a State that is not'.[29] Based on this premise, the continuity of IEL agreements during armed conflicts will have to be determined on a case-by-case analysis, in light of both objective and subjective elements.

The object and purpose of a specific treaty on environmental protection may provide guidance as to its applicability during armed conflict, whenever the intention of the parties does not expressly exclude it.[30] However, although certain international environmental agreements contain provisions confirming their continuing application directly or indirectly,[31] most of them remain silent on the issue.[32]

As far as the subjective application is concerned, international environmental rules may continue to regulate the relationships between belligerent and non-belligerent States. Since the law of neutrality plays a key role in granting to non-belligerent States the right not to be adversely affected by the conflict, the legal relationships between a belligerent State and a neutral State are governed by the law of peace.[33] In relation to the use of nuclear weapons

27 Bothe/Brunch/Diamond/Jensen (n 8) 579–580.

28 ILC, Effects of Armed Conflicts on Treaties, UN Doc. A/CN.4/L.727/Rev.1, 6 June 2008.

29 The ILC hereby confirmed the approach already adopted by the *Institut de droit international* in 1985 during the Helsinki session. See *Institut de droit international*, Yearbook, vol. 61, Part II (1985), 278.

30 See art 9 Convention on Third Party Liability in the Field of Nuclear Energy (1960, amended 1964).

31 See, for instance, art 236 of the UN Convention on the Law of the Sea. See also International Institute of Humanitarian Law, *San Remo Manual on International Law Applicable to Armed Conflict at Sea* (Cambridge University Press 1995), paras 34–35. In the context of the conflict between Iraq and Iran, the Security Council required all belligerents to 'refrain from any action that may endanger peace and security as well as marine life in the region of the Gulf'. See UNSC Res 540 (31 October 1983), para 5.

32 Examples include the Convention on Biological Diversity (1992), the UN Convention to Combat Desertification (1994) and the Convention on the Conservation of Migratory Species of Wild Animals (1979). For a detailed analysis of IEL agreements that may be considered applicable in armed conflicts, see S Vöneky, 'A New Shield for the Environment: Peacetime Treaties as Legal Restraints of Wartime Damage' (2000) 9 *RECIEL* 20.

33 M Bothe, 'The Law of Neutrality' in D Fleck (ed), *The Handbook of International Humanitarian Law* (Oxford University Press 2013) 549.

Stefano Saluzzo - 9789004507999
Downloaded from Brill.com03/23/2022 08:30:07AM
via free access

during an armed conflict, the ICJ highlighted the relevance of the law of neutrality while recalling that 'the principle of neutrality applies with equal force to transborder incursions of armed forces and to the transborder damage caused to a neutral State by the use of a weapon in a belligerent State'.[34] Accordingly, a non-belligerent State could expect a State participating in a conflict to comply with its environmental obligations and invoke the consequences attached to an internationally wrongful act in the event of a breach.[35]

Different considerations concern customary principles of environmental law. Certain principles might be deemed applicable even during an armed conflict, due to their formulation or related State practice. An example is offered by the so-called *Trail Smelter* principle, requiring States not to allow the use of their territory to harm the territory of other States.[36] The preventive obligations encapsulated in the principle may afford protection to neutral States in case of environmental damage deriving from the hostilities conducted on the territory of the parties to the conflict,[37] as foreseen by the ICJ in the *Nuclear Weapons* advisory opinion.[38] In such context, the applicability of customary principles on environmental protection would also be confirmed by reference to the Martens Clause, which has formed part of the LOAC since the 1899 II Hague Convention.[39]

This leads to a final question, regarding the precise scope of interaction between the rules of IHL and those of IEL. It has been claimed that, even once the applicability of IEL obligations during an armed conflict has been accepted in principle, it could be difficult to resort to the *lex specialis* criterion to determine the exact relationship between the two sets of rules. The LOAC is generally considered special as regards other rules of international law. Some commentators have questioned this construction in relation to IEL rules, the

34 ICJ, *Nuclear Weapons*, para 88, quoting the written statement of the Government of Nauru (p. 35) in the advisory proceeding on *Legality of the Use by a State of Nuclear Weapons in Armed Conflict*.

35 With the only exceptions being suspension or termination of a treaty by means of the *rebus sic stantibus* clause or by conduct justified under a state of necessity.

36 *United States v. Canada*, 3 RIAA 1907 (1941).

37 Bothe/Brunch/diamond/Jensen (n 8) 585. See the example of the law of occupation in Draft Principle 22 ('Due Diligence') of the ILC's work on Protection of the environment in relation to armed conflicts.

38 ICJ, *Nuclear Weapons*, para 29.

39 The Martens Clause is often recalled as a legal basis for the application of fundamental rights in armed conflict. See David (n 9) 94–95; A Cassese, 'The Martens Clause: Half a Loaf or Simply Pie in the Sky' (2000) 11 *EJIL* 212.

Stefano Saluzzo - 9789004507999
Downloaded from Brill.com03/23/2022 08:30:07AM
via free access

latter being special as well, in relation to environmental concerns not specifically addressed by IHL.[40]

However, the *lex specialis* criterion is relevant only to address concrete and specific normative conflicts, that is, when a material case is regulated by two conflicting rules. In the scenario where IHL rules do not provide an answer to certain aspects of environmental damage occurring in armed conflict, one could resort to rules and principles of IEL as a complementary tool. If, for instance, consequences of an environmental damage are not regulated by IHL, elements such as remedial duties and liability might be regulated by IEL. This is particularly evident when considering that IHL rules on the conduct of hostilities are mostly preventive in nature and do not address the material and legal consequences of environmental damage. As regards CBRN events occurring in armed conflicts, while obligations of prevention will mainly flow from the rules of IHL on the conduct of hostilities, other phases of the disaster management cycle will fall under the authority of the applicable rules of international law.[41]

4 The Damage Threshold

Most of the criticisms regarding IHL rules on environmental protection are related to the high threshold that the environmental damage must meet in order to trigger their application.[42] As already mentioned, the cumulative conditions set forth by Article 35(3) AP I show a particularly restrictive approach, that might jeopardise the concrete effectiveness of the prohibition. Different

40 See Bothe/Brunch/diamond/Jensen (n 8) 581 (fn 41) and SN Simonds, 'Conventional Warfare and Environmental Protection: A Proposal for International Legal Reform' (1992) 29 *StanJIntlL*188.

41 In the case of an oil slick that affected Lebanon's coastline, caused by the 2006 Israeli operation in Lebanon against Hezbollah, the UN General Assembly recognised the duty upon Israel 'to assume responsibility for prompt and adequate compensation to the Government of Lebanon and other countries directly affected by the oil slick for the costs of repairing the environmental damage caused by the destruction, including the restoration of the marine environment'. See UNGA Res 62/88 (19 December 2007), UN Doc. A/RES/62/88, para 4. See also UNSC Res 687 (1991), UN Doc. S/RES/687 (1991), where the UN Security Council held Iraq accountable 'under international law for any direct loss, damage, including environmental damage and the depletion of natural resources'.

42 See R Falk, 'The Inadequacy of the Existing Legal Approach to Environmental Protection in Wartime' in JE Austin and CE Brunch (eds), *The Environmental Consequences of War – Legal, Economic and Scientific Perspectives* (Cambridge University Press 2000) 137.

Stefano Saluzzo - 9789004507999
Downloaded from Brill.com03/23/2022 08:30:07AM
via free access

interpretations have also been advanced as far as the ENMOD Convention and AP I are concerned.[43]

As to the temporal element, the long-term duration of the damage is measured in months under the ENMOD Convention and in decades under AP I.[44] However, while the 'wide-spread' element encompasses 'an area on the scale of several hundred square kilometers' for the purpose of the ENMOD Convention,[45] AP I would require a lower scale. Finally, the gravity of the environmental damage envisaged is rather ambiguous: according to the ENMOD Convention, it should involve 'serious or significant disruption or harm to human life, natural and economic resources or other assets',[46] while, under Article 55(1) AP I, the damage should 'prejudice the health or survival of the population'.

The terminological uncertainty of such provisions, together with the need to conduct an assessment of these elements *ex ante*,[47] have contributed to their lack of practical relevance, with authors highlighting the impossibility of calculating the consequences of environmental damage under IHL even in the case of nuclear weapons.[48] Moreover, given the civilian character of the natural environment, the ambiguity also affects the application of the general principles on the conduct of hostilities.

As far as the principle of proportionality is concerned, an attack would only be lawful when the damage to the environment is not excessive in relation to the concrete and direct military advantage. While assessing the scope of incidental environmental consequences might prove difficult, authors have also raised doubts as to whether the proportionality assessment should encompass all the requirements defining environmental damage under AP I.[49] Some

---

43 A Bouvier, 'Protection of the Natural Environment in Time of Armed Conflict' (1991) 31 *IRRC* 575–6.

44 David (n 9) 351; WH Boothby, *Weapons and the Law of Armed Conflict* (Oxford University Press 2016) 80, 83.

45 See the Understandings attached to the Convention.

46 Ibid.

47 Damage to the environment which is not intended nor expected would fall outside the prohibition of the Protocol. See Y Dinstein, *The Conduct of Hostilities under the Law of International Armed Conflicts* (Cambridge University Press 2004) 183.

48 Oeter (n 11) 216. The environmental damage caused during the First Gulf War, related to the bombing of hundreds of oil wells, is generally considered to fall outside the scope of arts 35 and 55 AP I. See E Crawford, A Pert, *International Humanitarian Law* (Cambridge University Press 2020) 208.

49 Bothe (n 33) 578.

Stefano Saluzzo - 9789004507999
Downloaded from Brill.com03/23/2022 08:30:07AM
via free access

States seem to consider the criteria set forth by Articles 35 and 55 AP I as an integral part of the proportionality test.[50]

The multiple complexities surrounding the application of IHL rules on environmental protection lead inevitably to the need to reconsider the role of IEL principles in guiding the belligerents' behaviour, also in a preventive perspective. This can only be achieved by a reassessment of the implications deriving from the precautionary principle.

5 The Precautionary Principle and Environmental Care

It is easily arguable that the principle of precaution under Article 57 of AP I is also applicable to attacks against the natural environment.[51] The principle of precaution entails specific duties on the belligerent, namely to take all feasible measures to distinguish between civilian and military objectives and to avoid attacks expected to cause excessive collateral damage. The principle places upon belligerents a duty of due diligence in all phases of the attack, from the planning to the concrete execution. In the context of attacks that may provoke damage to the environment, the question becomes whether the precautionary duties can be construed and applied in line with the approach usually adopted in IEL. Such an attempt has been made by the ICRC *Study on Customary Law*, with customary Rule 44 enshrining the principle of 'due regard' in relation to potential environmental damage:

> Methods and means of warfare must be employed with due regard to the protection and preservation of the natural environment. In the conduct of military operations, all feasible precautions must be taken to avoid, and in any event to minimize, incidental damage to the environment. Lack of scientific certainty as to the effects on the environment of certain military operations does not absolve a party to the conflict from taking such precautions.

---

50 See US Army, Civilian Casualties Mitigation, July 2012 (available at <www.armypubs.us.army.mil/doctrine/index.html>). In relation to the war crime of environmental damage, the Rome Statute also codified an additional requirement regarding proportionality, according to which the damage must be 'clearly excessive in relation to the concrete and direct overall military advantage anticipated' (art 8(2)(b)(iv)). See Wyatt (n 4) 633.

51 As confirmed by the 1996 ICRC *Guidelines for Military Manuals and Instructions on the Protection of the Environment in Times of Armed Conflict* (<www.icrc.org/en/doc/resources/documents/article/other/57jn38.htm>).

Stefano Saluzzo - 9789004507999
Downloaded from Brill.com03/23/2022 08:30:07AM
via free access

This formulation represents an effort to apply the precautionary obligations of IEL to the IHL duty to take precautions in armed conflicts,[52] as also confirmed by the Commentary to the Study.[53] A precautionary approach could already be derived from the reference in Article 55 AP I to the duty of 'care'.[54] The value of Rule 44, however, lies in the clarification of specific elements of such a precautionary approach.

Firstly, the provision bridges the gap between the notion of due regard and the obligations of conduct placed upon the belligerents by virtue of the principle of precaution. Moreover, both the notion of 'care' and of 'due regard' are flexible enough to allow environmental considerations to change and develop over time,[55] in accordance with scientific knowledge and common sensitivity. Indeed, this is confirmed by the final clause of Rule 44, containing a reference to the precautionary approach derived from IEL: belligerents may not invoke the lack of scientific certainty to disregard the duties stemming from the principle of precaution. The choice of words mirrors the text of the 1992 Rio Declaration, whose Principle 15 codifies the precautionary approach.[56] Although the latter is generally invoked as a parameter for regulatory choices, the reference in Rule 44 adapts the approach to more dynamic decisions, such as those related to the planning and the execution of an attack.[57] In this sense, the reference to the precautionary approach also entails an extension of the scope of application of the duties of precaution set forth in IHL. At the same time, it constitutes a complementary element of environmental protection in

52 Bothe/Brunch/diamond/Jensen (n 8) 575. The wording of Rule 44 has also been adopted in other codification: see L. Doswald-Beck (ed), *San Remo Manual on International Law Applicable to Armed Conflict at Sea* (Cambridge University Press 1995), Rule 44; Harvard University, Program on Humanitarian Policy and Conflict Research (HPCR), *Manual on International Law Applicable to Air and Missile Warfare*, Bern, 2009, Rule 88.

53 The Commentary highlights that the entire framing of Rule 44 stems from the development of international environmental law and from the need to protect the environment not just as a civilian object, but mostly as a common good in itself. See Henckaerts/Doswald-Beck (n 21) 147.

54 K Hulme, 'Taking Care to Protect the Environment against Damage: a Meaningless Obligation?' (2010) 92 *IRRC* 679.

55 R Desgagné, 'The Prevention of Environmental Damage in Time of Armed Conflicts: Proportionality and Precautionary Measures' (2000) 3 *YIntlHL* 116.

56 See P Sands, *Principles of International Environmental Law* (Cambridge University Press 2003) 266.

57 Moreover, the precautionary approach would also entail a shift in the burden of proof. See Sands (n 56) 273.

Stefano Saluzzo - 9789004507999
Downloaded from Brill.com03/23/2022 08:30:07AM
via free access

armed conflicts with respect to unforeseeable results, together with preventive duties that are instead related to expected outcomes.[58]

A second issue raised by Rule 44 is the absence of any reference to the threshold of damage that characterises Articles 35(3) and 55(1) AP I (and the corresponding customary rules). Consequently, States would be required to abide by precautionary obligations even when the expected damage is below the wide-spread, long-term and severe threshold.[59] If construed this way, Rule 44 would certainly constitute a major innovation to be welcomed. However, one could still consider that the threshold would remain implicitly required. Especially because Rule 44 relies on a general principle of IHL, it would be questionable for such a rule to bypass requirements set forth by special rules of AP I addressing a specific case, such as those on environmental protection. On the other hand, it is also true that the two readings are not inconsistent with each other: while Articles 35(3) and 55(1) incorporate a prohibition on causing damage of a certain expected gravity, the principle of precaution (as phrased in Rule 44) would require belligerents to undertake a careful assessment of the situation during the targeting process. In other words, while the threshold of damage is part of an obligation of result, the precautionary principle entails obligations of means (or best effort obligations), which are necessarily wider in scope even when applied to environmental protection. More importantly, it is precisely the performance of precautionary duties that would allow the parties to conduct the prognostic evaluation of the attack required by the other provisions.

6 Concluding Remarks

The vagueness and restrictiveness of environmental protection standards in IHL have attracted much criticism and debate over the decades. It is hard to deny the flaws of the current legal framework, which has been eroded by many years of controversies and non-compliance. However, the rules provided in IHL could receive new life and attention if cautiously bridged with duties flowing from general obligations of IEL, with the aim of better regulating all the phases of a CBRN threat that could materialise during an armed conflict.

58 On the relationship between the prevention and the precautionary principles, see JE Viñuales, 'Legal Techniques for Dealing with Scientific Uncertainty in Environmental Law' (2010) 43 *VandJTransnatlL* 437; L-A Duvic-Paoli, *The Prevention Principle in International Environmental Law* (Cambridge University Press 2018) 263.

59 Hulme (n 54) 686.

Stefano Saluzzo - 9789004507999
Downloaded from Brill.com03/23/2022 08:30:07AM
via free access

First, the approaches and the mechanisms regulating the functioning of IEL are frequently used as a tool to implement IHL obligations related to the environment. As to CBRN weapons, this tool may prove particularly valuable, by shaping the duties of belligerents in all phases of the attack and by requiring a careful assessment of the consequences deriving from it. The construction of the principle of precaution under Article 57(1) AP I seems to move precisely in this direction.

Furthermore, there are still many aspects related to the use of CBRN weapons that IHL does not have the capacity to regulate. Instead of waiting for a reform of the existing legal framework, a much better solution lies in exploring the interactions between the LOAC and IEL. Rules and procedures established by the latter in relation to response and liability issues could be relied upon to mitigate the environmental impact of CBRN events that occur during a conflict.

This approach has already been adopted by the ICRC in its Study on Customary Law and in the 1996 Guidelines and it is still at the core of the ILC's work on the protection of the environment in armed conflict. It appears to be the only viable approach to address the full range of environmental risks deriving from war, especially in cases that would fall outside the restrictive scope of IHL rules.

Bibliography

Boothby WH, *Weapons and the Law of Armed Conflict* (Oxford University Press 2016).

Bothe M, 'The Law of Neutrality' in D Fleck (ed), *The Handbook of International Humanitarian Law* (Oxford University Press 2013) 549.

Bothe M, Bruch C, Diamond J and Jensen D, 'International law protecting the environment during armed conflict: gaps and opportunities' (2010) 92 *IRRC* 572.

Bouvier A, 'Protection of the Natural Environment in Time of Armed Conflict' (1991) 31 *IRRC* 567.

Cassese A, 'The Martens Clause: Half a Loaf or Simply Pie in the Sky' (2000) 11 *EJIL* 187.

Crawford E, Pert A, *International Humanitarian Law* (Cambridge University Press 2020).

David E, *Principes de droit des conflits armés* (Bruylant 2012).

de Preux J, 'Protocol I – Article 35' in Y Sandoz, C Swinarski and B Zimmermann (eds), *Commentary on the Additional Protocols of 8 June 1977 to the Geneva Conventions of 12 August 1949* (ICRC/Martinus Nijhoff Publishers 1987) 389.

Desgagné R, 'The Prevention of Environmental Damage in Time of Armed Conflicts: Proportionality and Precautionary Measures' (2000) 3 *YIntlHL* 109.

Stefano Saluzzo - 9789004507999
Downloaded from Brill.com03/23/2022 08:30:07AM
via free access

Dinstein Y, *The Conduct of Hostilities under the Law of International Armed Conflicts* (Cambridge University Press 2004).

Doswald-Beck L (ed), *San Remo Manual on International Law Applicable to Armed Conflict at Sea* (Cambridge University Press 1995).

Duvic-Paoli LA, *The Prevention Principle in International Environmental Law* (Cambridge University Press 2018).

Falk R, 'The Inadequacy of the Existing Legal Approach to Environmental Protection in Wartime' in JE Austin and CE Brunch (eds), *The Environmental Consequences of War – Legal, Economic and Scientific Perspectives* (Cambridge University Press 2000) 137.

Gaudreau J, 'The reservations to the Protocols additional to the Geneva Conventions for the protection of war victims' (2003) 849 *IRRC* 143.

Harvard University, Program on Humanitarian Policy and Conflict Research (HPCR), *Manual on International Law Applicable to Air and Missile Warfare*, Bern, 2009.

Henckaerts J-M and Doswald-Beck L, *Customary International Humanitarian Law – Volume I: Rules* (Cambridge University Press 2009).

Hulme K, 'Taking Care to Protect the Environment against Damage: a Meaningless Obligation?' (2010) 92 *IRRC* 675.

International Institute of Humanitarian Law, *San Remo Manual on International Law Applicable to Armed Conflict at Sea* (Cambridge University Press 1995).

Lehto M, 'Armed conflicts and the environment: The International Law Commission's new draft principles' (2020) 29 *RECIEL* 67.

Oeter S, 'Methods and Means of Combat' in D Fleck (ed), *The Handbook of International Humanitarian Law* (Oxford University Press 2013) 115.

Olson KR and Morton LW, 'Long-Term Fate of Agent Orange and Dioxin TCDD Contaminated Soils and Sediments in Vietnam Hotspots' (2019) 9(1) *Open Journal of Soil Science* 1.

Pretorius J, 'Enhancing Environmental Protection in Non-International Armed Conflict: The Way Forward' (2018) 78 *ZaöRV* 903.

Sands P, *Principles of International Environmental Law* (Cambridge University Press 2003).

Sills P, *Toxic War – The Story of Agent Orange* (Vanderbilt University Press 2014).

Simonds SN, 'Conventional Warfare and Environmental Protection: A Proposal for International Legal Reform' (1992) 29 *StanJIntlL* 165.

Vanninen P *et al* 'Exposure status of sea-dumped chemical warfare agents in the Baltic Sea' (2020) 161 *Marine Environmental Research* 105112.

Viñuales JE, 'Legal Techniques for Dealing with Scientific Uncertainty in Environmental Law' (2010) 43 *VandJTransnatlL* 437.

Vöneky S, 'A New Shield for the Environment: Peacetime Treaties as Legal Restraints of Wartime Damage' (2000) 9 *Review of European, Comparative and International Environmental Law* 20.

Stefano Saluzzo - 9789004507999
Downloaded from Brill.com03/23/2022 08:30:07AM
via free access

Wyatt J, 'Law-Making at the Intersection of International Environmental, Humanitarian and Criminal Law: the Issue of Damage to the Environment in International Armed Conflicts' (2010) 92 *IRRC* 593.

Young AL, *The History, Use, Disposition and Environmental Fate of Agent Orange* (Springer 2009).

Stefano Saluzzo - 9789004507999
Downloaded from Brill.com03/23/2022 08:30:07AM
via free access